

Nucleotide sequence of a rabbit genomic DNA encoding mature endothelin-3

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Endothelin, a potent vasoconstrictor peptide, was isolated and its cDNAs from human and porcine libraries were cloned (1, 2). Analysis of human genomic DNA suggested the existence of an ET-family (ET-1, ET-2, ET-3) (3). Using ET-3 specific antibody, we have recently revealed the ET-3 expression in the brain, intestine and placenta of rat (4). We have also isolated a human cDNA clone for ET-3 (5). To examine the species specificity of ET-3 genes, we have examined a rabbit ET-3 gene and present here its partial DNA sequence.

The rabbit genomic library (EMBL-3) was constructed from liver chromosomal DNA and screened (6) with a 45-nucleotide synthetic DNA probe corresponding to mature ET-1. The predicted amino acid sequence of rabbit ET-3 (boxed in the figure) is identical to human and rat sequences (3,7), and the prepro-ET-3 region is highly conserved, suggesting its important role in animals. Compared with human ET-3 gene (unpublished data) or its cDNA (5,9), this sequence includes the entire exon containing mature region and its 3′-exon (probably exon 1). The predicted splice sites and junction consensus sequences in the rabbit gene are indicated by arrows and underlining, respectively. The first methionine at position 317 is thought to be the translation initiation site. The length of the 3′-portion of rabbit prepro-ET-3 is the same as the human type except for the 24bp repeat sequence which exists in both the human genome and cDNA but not in the rabbit genome.

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TGTGTTTGGGCGGCGACCCCCGGGGCGCCCCTGGTTCAAAGGCCCCGCGCGGCAGCTCCAGCCCCTCCGGGGGGCGGGGAGGCGAGGGGG   90

GTGGTGCGGAGCCAGAAAAGCCCGAGCCCACAGCCGGCCAGTCCTGCGCGGGGATGGGCAGCGCGCGCTGAAAGTTGGTGACCGCCGCAC  180

CCAACTGCCGGCTGCAGCCCAGGACGCAGCGAGCCAGCGAGCCGGCGGCCTCGAACCCCCACGGCGAGCCGCGCGGCCCGCTGTACCTGG  270

CCACCAGCGGCCGACCTGCCGCCCCGGTGCTCCCGCGCCTGATCCGGGTTCATGGAGCCCGGGCTGTGGATCCTTTTGGGGCTCACAGTG  360
                                                    M  E  P  G  L  W  I  L  L  G  L  T  V   13

ACCGCCGCCGCAGGTAAGCGGCCCGGGGCGCGCCTGTCCCGGCGCGAGCGCACACAAAAGGACCTGGGCGGCGAGGTGCGCGCGTCGC  450
 T  A  A  A                                                                                 17

GGGGAGGGCCCCGCACCCCTGGAGGCGCTCGGCGGCGGGGGTGGGCGCAGCAGCTCAGCGCAGGGCCTGCACTGTGGGCTATGGGGGCTG  540

GTTCCAGCTCACTTGGTCAGTGTCTCCGAAGCCCTCTGCAGACTGCAGAATGCTAGCCAAGTTTTCAGTGCCCGAGCAGAGTGCGTGCAA  630

GTTTTCAGCGAGTTTAGATGGCTTGCAGGCTCTGCAGGGAGTGCGTGGAGGAAGCTTGCAAGCGCTTCACACGGCATGCACGGGGCTTGG  720

AACATTTTCGGAAACTGTGTTCAGGGCTGTGCTGGCTGCTGGAAGGCTTGGCTTAGCTCGGAGATGTGAGACAATTGGAGATAACTTTGC  810

AGGAGTTTGCCTGCCCCGCCCCCAACCCAGGTGCGTGCGGGGTGGGCGTTGAGGGGTCTGCTCTCTGGGCTCAGGAGCCCCTGGTCTTTG  900

CTCCTTGCAGGATTCGTGCCTTGCCCCCAGACTGGGGGTGCTGGCAGGACCAGCGTGCCCCGGGCCCCCCGTGTAGCCGGGTCTGAGGGG  990
          G  F  V  P  C  P  Q  T  G  G  A  G  R  T  S  V  P  R  A  P  R  V  A  G  S  E  G   44

GACTGTGAAGACTCTGTGGCCAGCCCTAGAAGGCAGACTGTGGCCCCCACGGCAGGCAAGGGGCCCAGCCCTGGAAGCCCTGGGCGGGGG 1080
 D  C  E  D  S  V  A  S  P  R  R  Q  T  V  A  P  T  A  G  K  G  P  S  P  G  S  P  G  R  G   74

CAGGCGGCCGAGGGGGACCCGGGGCACCGCCGTGTGCGACGTTGCACCTGCTTCACCTACAAAGACAAAGAGTGCGTCTACTACTGCCAC 1170
 Q  A  A  E  G  D  P  G  H  R  R  V  R  R  C  T  C  F  T  Y  K  D  K  E  C  V  Y  Y  C  H  104

CTGGACATCATCTGGATCAACACTCCGGAGTGAGTCAGCCCCAGCCCGCCCCTGCCTCACTGTCCCCGTCCCAGGGGGCCTGATGCCACC 1260
 L  D  I  I  W  I  N  T  P    (*)                                                           113

CCTCAGCCCCTGCCGGGTCTCCCGCCAGCCCGGGTCCCGCCTGCAGGTCCATGTGTGAGCCGTGTCCCCTTCCTCGGCCCTGGCCCCGGG 1350

GAAACCCAATCCTGCCTGTGTGGTGGCGGAGAGGCCCCTCCCAGGAGCAGTGAGCTGGCAGAGAGGATTAGACACCCGAGACGCTGGCCC 1440

GAGGTGGAGGAAAGCCCCGAAAGTCTGTCCCGCACCCCAGAGGCTGAGTGTGCTTGTCCACCCTGCTGACCTCCCAGGCTGCCAGGAGTT 1530

TAGAATTC                                                                                   1538
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